

ABSTRACT

The invention relates to methods for improving the octane number of a synthetic naphtha stream and optionally for producing olefins and/or solvents. In one embodiment, the method comprises aromatizing at least a portion of a synthetic naphtha stream to produce an aromatized hydrocarbon stream; and isomerizing at least a portion of the aromatized hydrocarbon stream to produce an isomerized aromatized hydrocarbon stream having a higher octane rating than the synthetic naphtha stream. Alternatively, the method comprises providing at least three synthetic naphtha cuts comprising a C₄-C₅ stream; a C₆-C₈ stream and a C₉-C₁₁ stream; aromatizing some of the C₆-C₈ stream to form an aromatized hydrocarbon stream with a higher octane number; steam cracking some of the C₆-C₈ stream and optionally the C₉-C₁₁ stream to form olefins; and selling some portions of C₉-C₁₁ stream as solvents. In preferred embodiments, the synthetic naphtha is derived from Fischer-Tropsch synthesis.